

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A nucleic acid amplifier comprising at least one flow channel therein, ~~in which wherein~~ a reaction solution containing ~~comprising~~ at least a nucleic acid ~~to be used as a template~~, a nucleic acid ~~to be used as a primer~~, a phosphate compound, and a metal ion is caused to flow through the flow channel ~~and~~ to thereby perform the nucleic acid amplification in the flow channel, characterized in that ~~wherein~~ the flow channel comprises:

a denaturation region ~~in which wherein~~ a denaturation reaction is carried out, the denaturation reaction ~~including comprising~~ melting ~~an the~~ intramolecularly ~~formed~~, ~~and/or the~~ intermolecularly ~~formed, or the~~ intermolecularly and intramolecularly ~~formed~~ double strand of the nucleic acid ~~to be used as the template~~;

a regeneration region ~~in which wherein~~ a double strand is formed with the nucleic acid ~~to be used as the template~~, after the double strand thereof is melted, and the nucleic acid ~~to be used as the primer~~; and

a nucleic acid synthetase immobilized in the regeneration region.

Claim 2 (Currently Amended): [[A]] ~~The nucleic acid amplifier according to of claim 1, wherein the nucleic acid amplifier further comprises a means for controlling temperature, wherein the means for controlling temperature is included by the nucleic acid amplifier is capable of heating the denaturation region and of keeping a temperature of the regeneration region lower than a temperature of the denaturation region.~~

Claim 3 (Currently Amended): [[A]] The nucleic acid amplifier according to of claim 1 ~~or 2~~, wherein the nucleic acid synthetase is immobilized on beads, and wherein the beads fill at least the regeneration region.

Claim 4 (Currently Amended): [[A]] The nucleic acid amplifier according to of claim 1 ~~or 2~~, wherein the nucleic acid synthetase is immobilized at least on an inner wall surface of the regeneration region.

Claim 5 (Currently Amended): [[A]] The nucleic acid amplifier of claim 1 according to ~~any one of claims 1 to 4~~, wherein the flow channel provides comprises the denaturation region and the regeneration region alternately.

Claim 6 (Currently Amended): [[A]] The nucleic acid amplifier according to any one of claims 1 to 5 claim 1, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 7 (Currently Amended): [[A]] The nucleic acid amplifier according to any one of claims 1 to 6 of claim 1, wherein the flow channel provides comprises a circulation flow channel, ~~the circulation flow channel including comprising~~ the regeneration region and the denaturation region.

Claim 8 (Currently Amended): [[A]] The nucleic acid amplifier of according to any one of claims 1 to 7 claim 1, further comprising a solution-sending device for directionally

regulating a flow of the reaction solution, wherein the solution-sending device is controllable to periodically reverse the direction of flow of the reaction solution.

Claim 9 (Currently Amended): A method of amplifying a nucleic acid, ~~the nucleic acid being used as a template in a reaction solution containing comprising~~ at least the nucleic acid ~~to be used as the template, a nucleic acid to be used as a primer, a phosphate compound, and a metal ion, comprising the steps of:~~

(a) denaturing the nucleic acid ~~to be used as the template by melting an the intramolecularly formed double strand, and/or the intermolecularly formed double strand, or the intramolecularly and intermolecularly formed double strand thereof at a predetermined region;~~

(b) regenerating a double strand by forming the double strand between the ~~melted nucleic acid template obtained in step (a) that to be used as the template wherein the double strand is melted and the nucleic acid to be used as the primer at a region different from the region of the step (a); and~~

(c) contacting the reaction solution during, ~~just after, or during and just after and/or just after the step (b)~~ with a nucleic acid synthetase immobilized and retained in an active state at a region including the region on which ~~the step (b)~~ is performed.

Claim 10 (New): The nucleic acid amplifier of claim 2, wherein the nucleic acid synthetase is immobilized on beads, and wherein the beads fill at least the regeneration region.

Claim 11 (New): The nucleic acid amplifier of claim 2, wherein the nucleic acid synthetase is immobilized at least on an inner wall surface of the regeneration region.

Claim 12 (New): The nucleic acid amplifier of claim 2, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 13 (New): The nucleic acid amplifier of claim 3, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 14 (New): The nucleic acid amplifier of claim 4, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 15 (New): The nucleic acid amplifier according to claim 2, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 16 (New): The nucleic acid amplifier according to claim 3, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 17 (New): The nucleic acid amplifier according to claim 4, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 18 (New): The nucleic acid amplifier according to claim 5, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 19 (New): The nucleic acid amplifier of claim 2, wherein the flow channel comprises a circulation flow channel comprising the regeneration region and the denaturation region.

Claim 20 (New): The nucleic acid amplifier of claim 3, wherein the flow channel comprises a circulation flow channel comprising the regeneration region and the denaturation region.